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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10-072,214	02-07/2002	James E. Young	10004410-1	2305

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AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
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EXAMINER

JOHNSTON, PHILLIP A

ART UNIT PAPER NUMBER

2881

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/072,214

Applicant(s)

YOUNG, JAMES E.

Examiner

Phillip A Johnston

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other

***Detailed Action***

***Claims Rejection – 35 U.S.C. 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 10, are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 5,021,654, to Campbell et al.

Campbell (654) clearly discloses an all-ceramic ion mobility spectrometer cell that includes a block of ceramic material 12, which has a passageway 14 there through containing a reaction region 16, a shutter grid assembly 18 comprising a first shutter grid 19 and a second shutter grid 20, which are spaced apart by spacer 21. Spacer 21 may be for example a ceramic washer. Shutter grids 19 and 20 may be for example stainless steel or other suitable metal etched to form 0.076 mm (0.003 inches) wires 22. First shutter grid 19 has tab 23 and second shutter grid 20 has tab 24 extending through the block of ceramic material 12 to allow electrical connection from the outside. See Column 4, line 31-42.

Campbell (654) also discloses that the block of ceramic material 12 may have conductive and resistive thick film coatings applied to the exterior surface 13 for heater elements, electrical contact pads, EMI reduction, and electrical interconnection. Holes from the exterior surface 13 to passageway 14 may be metalized or coated with conductive ink or thick film material to establish electrical contact with linear resistors in reaction region 16 and drift region 40. See Column 6, line 12-19.

Campbell (654) further discloses in the Abstract an ion mobility spectrometer for detecting sample gas in a carrier gas incorporating a block of ceramic material having a passageway wherein the passageway contains an ionization source, a resistive material on the walls of the passageway prior to and after a shutter grid to form a reaction region and drift region respectively, an aperture grid and a collector.

### ***Claims Rejection – 35 U.S.C. 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell (654), as applied above to Claims 1 and 10, in view of Sinha (419).

Campbell (654), as applied above discloses that the first length  $l_1$  of passageway 14 may have portions thereof with a first resistive layer 52 thereon to form an electric field in the direction of longitudinal axis 28 across the resistive layer to move ions formed in the first length to shutter grid assembly 18. Shutter grid assembly 18 is positioned across passageway 14 and forms the second end of the first length  $l_1$  shown by arrow 54. Passageway 14 has a second length  $l_2$  shown by arrow 56 to form a drift region 40 extending from shutter grid assembly 18 to aperture grid 32. The second length  $l_2$  of passageway 14 is drift region 40 and has portions thereof with a second resistive layer 58 thereon to form an electric field in a direction of longitudinal axis 28 when a voltage is placed longitudinally across second resistive layer 58 to move ions passing through shutter grid assembly 18 to aperture grid 32.

Collector 34, which may be supported by a ceramic block 66, which is machined or pre-formed to receive collector 34 which may be cemented or brazed to ceramic block 66. Ceramic block 66 has portions thereof pressing against the outer periphery of aperture grid 32 to hold aperture block grid 32 and collector 34 in a rigid position with respect to one another and to block ceramic material 12. Ceramic block 66 can be for example cylindrical in shape to fit into well 36 and may be sealed by a bead of adhesive 68. Electrometer 64 is rigidly positioned with respect to block of ceramic material 12 by spacers 70 and 71 and bolts therein, as recited in Claims 7, 8, 11, 12 and 15-18. See Column 5, line 1-52.

Regarding Claims 2, 4-6, 9 and 13, Campbell (654) as applied above discloses an all ceramic ion mobility spectrometer cell that includes nearly all the limitations of

Claims 2, 4-6,9 and 13, but does not include "removing a portion of the covering material", or "the cavity has a blind end and wherein the blind end is coated with the conductive coating." Sinha (419); however, discloses an electrostatic sector for a mass spectrometer that is formed from a single piece of machinable insulator that has desirable vacuum properties--low outgassing and ability to hold a vacuum.

Preferably, MACOR.TM. type ceramic or another type ceramic is used. Alumina (aluminum oxide) can alternatively be used.

The ceramic body is preferably machined to form an internal cavity of the proper dimension. A cover 210 can be ceramic or some other material. Sector rails are machined in the ceramic. FIG. 3A shows a view of the ceramic piece from the top. FIG. 3B shows a cross-section along the line 3--3, showing certain parameters of the ceramic. Ridge 300 that is machined into the MACOR block. The inside faces of ridge 300 form the electrostatic sector rails. Any desired size could be selected; however, the ridge is preferably ~0.1 inches wide and 0.5 inches deep, following a shallow curve with a main radius of 30.5 mm in this embodiment. MACOR is an insulator. The two inside faces of the rails that are carved in the block are made electrically conductive in order to form the electrostatic sector. The rails forming the two sides are also insulated from each other. Hence, once the ridge is formed as 300, the two sides are nickel or gold plated to form a covering nickel layer 400 of a thickness greater than 6 microns. Nickel coating is carried out throughout the unit both inside and outside in order to maintain parallelism between the faces of the electric sector rails 402, 404. Coating the outside allows grounding to avoid collection of charges on the device.

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An insulated break section 410 of the nickel coating 0.5 mm wide, along the central region of the inside area of the cavity 300, is removed. Two side faces and the upper region of the unit also have a corresponding piece 420 removed so that the insulating portion goes all the way around the unit. Hence the section 402 of the coated device is insulated from the section 404 of the coated device. See Column 2, line 25-61.

In addition, it is well known in the art to utilize readily available machining techniques to selectively remove material from coated and uncoated areas when shaping a ceramic ion optic device. See ; for example, U.S. Patent No.'s 6,281,494; 5,384,461; 5,286,944; and 4,390,784.

Therefore, it would have been obvious to one of ordinary skill in the art that one could modify the ion optic device of Campbell (654) and use ceramic machining method in accordance with Sinha (419), if so desired.

### ***Conclusion***

5. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (703) 305-7022. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor John Lee can be reached at (703) 308-4116. The fax phone numbers are (703) 872-9318 for regular

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response activity, and (703) 872-9319 for after-final responses. In addition the customer service fax number is (703) 872- 9317.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

PJ  
April 18, 2003

A handwritten signature in black ink, appearing to be "PJ", is located in the lower right quadrant of the page. The signature is stylized with a large, sweeping initial "P" and a cursive "J".